Virginia Department of Health
Glanders: Overview for Healthcare Providers

Organism	• Caused by the bacterium *Burkholderia mallei* (formerly *Pseudomonas mallei*) • Primarily infects equids (horses, donkeys and mules), but also infects humans • Gram negative coccobacilli
Infective dose	Undetermined, but presumed to be very low when organism is aerosolized
Occurrence	• No U.S. human cases since 1940s except one case confirmed in a laboratory worker in 2000 • Endemic foci in Asia, Africa, the Middle East and Central and South America
Natural reservoir	Zoonotic disease. Infected hosts (primarily equids). Not found in water, soil or plants.
Route of infection	• Direct contact of organism with mucosa (nasal, oral, conjunctival), skin lacerations • Inhalation of infective aerosols
Communicability	• Low risk of transmission from infected equids to humans • Person-to-person transmission extremely rare. No human epidemics reported.
Risk factors	• Laboratory work with cultures of *B. mallei* • Close contact (veterinarians, caretakers, abattoir workers) with infected equids
Case fatality	Untreated septicemia ~95%; treated septicemia >50%; treated localized ~20%; overall ~40%
Incubation period	• May vary depending on route of infection • Generally, 1 to 14 days; if inhaled, 10 to 14 days; if direct skin contact, 1 to 5 days
Clinical Manifestations	Localized infections: May be limited to skin ulceration at site of bacterial entry. Subsequent symptoms may include nodules, abscesses, and ulcers in skin, mucous membranes, lymphatic vessels, and/or subcutaneous tissues, mucopurulent nasal discharge, or lymphadenopathy. Localized infections may disseminate, symptoms could include papular or pustular rash, abscesses of liver and/or spleen, pulmonary lesions or septic shock. Septicemia: May include fever, rigors, myalgia, and pleuritic chest pain, generalized erythroderma, jaundice, lacrimation, diarrhea, granulomatous or necrotizing lesions, hepatomegaly, splenomegaly, cervical adenopathy. Note: blood cultures often remain negative. Pulmonary: May include cough, fever, dyspnea, mucopurulent discharge, pulmonary abscesses, pleural effusions or symptoms described for septicemia. Chronic: May include multiple abscesses, nodules, or ulcers in the skin, liver, spleen or muscles of the arms and legs. Associated enlargement and induration of regional lymph nodes and channels. Characterized by remissions and exacerbations.
Laboratory tests/ Sample collection	• Culture and identification of *B. mallei* from clinical specimens (including blood, urine, abscess material, sputum, tissue biopsy) • Alert lab of biohazard. Consultation with the state lab (DCLS) is strongly recommended. DCLS Emergency Services Officer can be paged 24/7 at (804) 418-9923.
Radiography	• CXR may show miliary nodules, small multiple lung abscesses, infiltrates or cavitation • CT scans may show lung, hepatic or splenic abscesses
Treatment (adults)	Treatment recommendations for glanders are based on those for meliodosis. • ceftazidime [50 mg/kg (max: 2 g) IV every 6 hours for 2 weeks]*, **or** • imipenem [25 mg/kg (max: 1 g) IV every 6 hours for 2 weeks]*, **or** • meropenem [25 mg/kg (max: 1 g) IV every 8 hours for 2 weeks]* **and (optional)** • TMP-SMX [8 mg/kg TMP and 40 mg/kg SMX (max: 320 mg TMP/1,600 mg SMX) IV every 12 hours for 2 weeks]* Following two week parenteral antibiotic treatment, prolonged (at least 3 months) antibiotic treatment with oral TMP-SMX [8 mg/kg TMP and 40 mg/kg SMX (max: 320 mg TMP/1,600 mg SMX) every 12 hours]*, **and (optional)** oral doxycycline [2 mg/kg (max: 100 mg) every 12 hours] is recommended to ensure complete eradication of organism. ***NOTE: Dosage reduction for these antibiotics is required in patients with impaired renal function.*
Prophylaxis	Post-exposure prophylaxis is of unproven benefit
Infection Control	Standard precautions. Contact precautions also indicated for patients with draining lesions. Environmental decontamination with a 0.5% sodium hypochlorite solution.
Vaccine	No vaccine available
Public Health	Report suspected cases of glanders to the local health department by the most rapid means

VDH VIRGINIA DEPARTMENT OF HEALTH
Protecting You and Your Environment
www.vdh.virginia.gov

For more information, refer to: Glanders: Guidance for Healthcare Providers, available at: http://www.vdh.state.va.us/EPR/Agents_Biological.asp, or Centers for Disease Control and Prevention, http://www.cdc.gov/ncidod/dbmd/diseaseinfo/glanders_g.htm

Updated 6/9/2005